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## THE COMPETITION OF TRANSPORTATION COMPANIES

Competition of transportation lines may be classified as of four kinds: competition of different lines over the same route, competition of routes, competition of directions, and competition of locations. Let us consider these four kinds of competition in order. Competition of different lines over the same route applies particularly to transportation on free waterways, for example on the ocean. In such transportation, the way or route is not the possession of any one company but may be used by all. The different companies operating over a given route may be in competition with each other.

Competition of routes may exist between navigation companies or railroad companies or both. By competition of routes is meant competition between two or more different routes or lines of transportation, either or any of which can carry goods between two given points. Such a competition, for example, is that which obtains between Chicago and New York. These cities are joined by a number of transportation lines. Goods moving between these two points have a choice of routes; and the tendency is for the goods to be sent, in each case, by that route which is, for the shipper, most economical considering rates, speed, liability to injury, etc. The transportation of wheat, corn, and other farm products from American centers of production to Europe, by any one of many routes, is another example.

Competition of routes may mean and frequently does mean that goods are taken to their destination by a very roundabout way. Sometimes the distance freight is actually carried in being taken from one point to another is from 50 to 100 per cent greater than the shortest possible distance.<sup>1</sup> In the Savannah fertilizer case, for example, it was shown that goods were carried from Savannah to Valdosta by connecting lines of railroad, a distance of 413 miles, when they might have been carried over a distance of only 275 miles.<sup>2</sup>

<sup>1</sup> W. Z. Ripley, *Railroads, Rates and Regulation*, pp. 269, 270.

<sup>2</sup> *Interstate Commerce Commission Reports*, vol. VII, p. 476 (458-480).

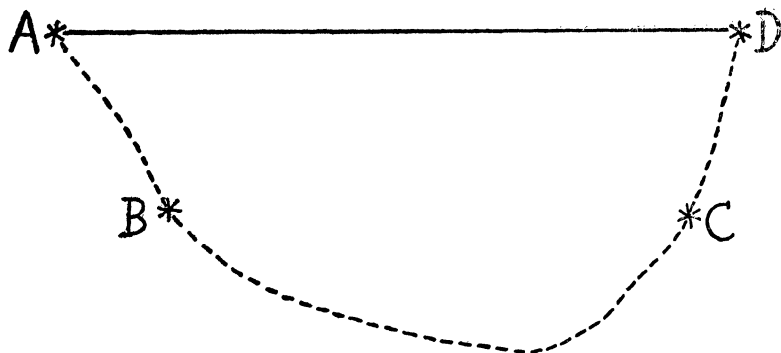
Other things equal, such roundabout transportation is uneconomical.<sup>3</sup> It costs more to carry goods by a long than by a short route between two given points. Assuming the same rate on either line, the long line has a less surplus as profit than the short line would have. Diversion of freight to the long line, therefore, means that the short line loses a larger profit than the long line gains. Looked at from the point of view of community economy, it means that a greater amount of labor is used to secure a result which a smaller amount of labor would equally well secure. This greater amount of labor is less profitably employed than it might be, with resulting loss in the total of the community's wealth. As in the case of the protective tariff, labor is employed where it does not yield the maximum return to the community. But it is not always the shortest line in miles which is most economical. The shortest line may be one which has relatively steep grades and so requires more labor and fuel than a longer one. As between two lines of equal length, the choice should ordinarily fall upon the more level; while as between two lines of equal grades, the choice should ordinarily fall upon the shorter. For the same reasons, it is desirable, *other things equal*, that a place should have goods brought to it from the nearest source of production and that centers of production should send their goods to the nearest markets. This, of course, may be very undesirable when other things are not equal. It is better that goods be brought from a far cheap source than from a nearby dear one. But where production costs are equal, transportation costs should be the least possible.

There are, however, three possible situations, in any one of which it may be desirable that goods should be carried by a relatively long and roundabout route instead of by a shorter and more direct one, even though grades are equal. To illustrate the first case of this sort, suppose the cities A and D to be connected by the two railroad lines A D direct and A B C D (figure 1). Suppose, also, that the traffic between A and D is more than the direct line A D can properly care for. Then it may well be that the surplus traffic, beyond what the line A D can carry, should go by the indirect line A B C D, rather than that a new direct line should be built between A and D or that the line A D should increase its trackage. For the construction of a new line or more trackage involves an additional investment of capital. The capital

<sup>3</sup> See Ripley's discussion in *Railroads, Rates and Regulation*, ch. 8.

invested in the roundabout line **A B C D** has been already sunk and can not be recovered. If the line **A B C D** yields any appreciable interest returns, it will probably be worth while to operate it, even though these returns are small. From the point of view of greatest national wealth, it is desirable that such a plant

FIGURE 1



should be operated even though it would not be desirable, could the choice be made again, to construct the plant.

On the other hand, the construction of a new line or new tracks should not be undertaken unless rates can be charged which will pay about the average return on investment. The old roundabout line may be able to make profit enough to justify its continued operation for a great many years on rates lower than would justify the construction of a new line, even if a more direct one. The construction of such a new line, under these circumstances, would involve economic waste. Exactly the same conclusion may be reached if we assume that there is no direct line but only the roundabout line between A and D and that the roundabout line is able to carry the traffic between these two points. To the question whether a direct line ought, under such circumstances, to be constructed, it is not unlikely that a correct answer would be negative.

To illustrate the second case where carriage of goods by a more roundabout line may be desirable, suppose (see figure 1) that the possible paying traffic between A and D is greater than either the direct or the indirect line or both together can carry, so that a new line must be built; or suppose, to make the case still clearer, that there is a great deal of possible traffic between A and D but that no railroad connecting those points, has yet been built.

The question is, whether a direct or an indirect line will be more profitable. Other things equal, the direct route would be preferred. But let us suppose that B and C are thriving towns, and that the traffic to and from each can be greatly developed, while on a direct line from A to D no other towns are located. On this supposition, a direct line, if constructed, must be able to earn enough on the through traffic between A and D to pay not only production-of-train-mileage expenses and terminal expenses, but also all of its general expenses (in which is here included expenses for maintenance of way as well as for administration) and profits. To do this and yield profits worth building for, it may have to charge fairly high rates. If a roundabout road is built, through B and C, it will have the local traffic between A and B, between B and C, and between C and D, as well as the through traffic between A and D. The local traffic will presumably help to pay general expenses and fixed charges (or profits). The local traffic may, in fact, pay enough to cover all the general expenses and almost enough to justify, even with no other sources of revenue in view, the construction of the road. If the road is built, rates can be made on the through traffic between A and D which yield very little more than is required to cover additional production-of-train-mileage costs and terminal costs; yet this little more will make the road a paying proposition. Even though freight from A to D or vice versa would have to be carried a longer distance on this road, it might be possible to carry it for lower rates than would pay all expenses, including general expenses and also a fair profit, on a more direct road. Yet without the through traffic between A and D, the line A B C D might not be able to make an average profit, or it might be able to make such a profit only by charging higher rates on its local short-distance business. If, then, an indirect line can carry goods more cheaply between A and D than a direct one, while making no less or a greater per cent profit, and while, perhaps, being able to make lower rates on its intermediate traffic than would otherwise be necessary, the former is the more economical route to use. If the indirect route is chosen, the *additional* labor necessary to carry the longer distance traffic is less than if a direct road is constructed for the longer distance traffic alone. The same principle may apply if the more direct line can hope to secure *some* intermediate traffic, but considerably *less* than the other.

The third case to be here considered is a case where the lines

A B C D and A D (see again figure 1) have both been built, but where the traffic between A and D is not more than can be taken care of by one of the roads alone. Not only is there no need for new construction, but already existing facilities are in excess of business. Unless more traffic is to be hoped for in the future, it will be the truest economy to abandon one of the roads. Otherwise the community must be burdened with two sets of general expenses and must in so far lose the economy that comes from complete utilization of a transportation plant.<sup>4</sup> If other things are equal, the conclusion must be that the more roundabout road is the one to be abandoned. But, as in the second case, other things may be unequal. The roundabout road may be able to rely upon intermediate traffic which the more direct road can not hope to secure. In that case, the direct road A D can not afford long to operate unless the through traffic between A and D can bear rates high enough to cover most or all of the general expenses of the road. But the road A B C D has, by hypothesis, intermediate traffic to and from B and C; and this intermediate traffic may possibly be considerable—enough to pay all the general expenses of the road and something towards profits. It may be worth while to operate the road A B C D even without any of the through traffic between A and D, or with rates on this through traffic barely above the additional production-of-train-mileage costs and terminal costs necessary to move it. The roundabout road may therefore be able to make lower rates, on through traffic between A and D, than the direct road could possibly afford to make, even though the former must carry the goods longer distances; and may yet be a more profitable investment for its owners than the latter could hope to be without charging higher rates. It may sometimes, therefore, be truer economy to abandon the direct than to abandon the roundabout line between two given points.

An illustration of a movement of traffic in part by relatively indirect routes, is furnished by the import and export trade of the United States. Goods are carried to Chicago and other middle western cities from Europe, and from the great grain-raising sections of the United States to Europe, by various transportation routes, and not always by the shortest. All the important ports and the railroads and steamship lines serving these different ports are in competition for this traffic. Wheat may be carried

<sup>4</sup> This saving has been already in part lost, when the unnecessary line was constructed, since capital which might have earned a fair return has been put where it can not do so.

due south to New Orleans or southeast to Galveston, and thence to Europe, instead of going east through Baltimore, Boston, or New York. If a railroad from the American wheat and corn regions to Norfolk, Newport News, Galveston, or New Orleans, is useful for domestic commerce, and can add anything to its profits by engaging at lower rates in export and likewise import trade, it may be as well or better that such a railroad should engage in this trade, as that the New York Central and the Pennsylvania should enlarge their plants so as to do more of export and import business. The different ports and railroads concerned in this business have on many occasions engaged in contests to secure, each, a larger share of the trade. These contests can be satisfactorily settled only by such an agreed relation of rates as will secure to each road a quota of the business. The Interstate Commerce Commission itself, when endeavoring to settle such a contest, has been able to find no better basis than this.<sup>5</sup>

The conclusions we have reached, should, it is believed, have some weight against any proposal to prohibit absolutely the competition of roundabout lines. We have seen that there are possible cases where a roundabout line may more profitably be built for the traffic between two points than a direct one. Yet, if the builders know in advance that they will not be allowed to compete against a direct one, should the latter be constructed, they will be less apt to build the roundabout line. Undoubtedly there are wastes of competition in the form of uneconomical carriage of goods over unduly long routes to destination, and some legal limitation on these wastes may be desirable. Yet on the other hand, as we have seen, it is not necessarily always the shorter line which is really the most economical for the purpose. Furthermore, the stimulus of competition between rival routes is not altogether without beneficial effects in hastening improvement, increasing efficiency, and keeping down average rates. The interstate commerce law of the United States penalizes the competition of roundabout lines by forbidding rates on intermediate traffic, *e.g.*, from A to C in the figure, higher than rates on longer distance traffic over the same line in the same direction, the shorter haul being included in the longer; though the rigor of this section (4) of the law is lessened by the power of the Interstate Commerce Commission to set it aside in cases where this seems proper. An

<sup>5</sup> See *Interstate Commerce Commission Reports*, vol. XI, pp. 13-81, particularly pp. 62, 63.

application of this law, or of its principle of limitation, which should require of the straightest or shortest line between two points strict conformity to the law as now worded and which should allow to more roundabout lines a percentage departure from this rule, might satisfactorily meet the difficulty. A more roundabout line might be allowed to depart from the rule by a larger per cent than one less roundabout, since otherwise reduction of its rates on goods going over the long distance might require so great reductions on its intermediate traffic as to deprive it of revenue. Yet after a certain degree of roundaboutness had been reached, further increase of the allowed percentage departure from the rule might properly be refused, since an undue difference would mean either that the long distance traffic was being carried for less than the additional cost occasioned or that the intermediate traffic was being charged exorbitant rates.

The solution here suggested would not do away with all uneconomical roundabout carrying of goods, but neither would it do away with the stimulus of competition. It may be better to have competition even with the economic waste inseparable from it, than not to have competition at all. No government rate regulation can ever stimulate progress as competition does, even if it can successfully prevent the enjoyment of monopoly profits. If the percentage of deviation from the long and short haul rule were properly arranged, no road would have any unfair advantage over any other, and competition, so far as it existed, would influence intermediate as well as strictly competitive traffic. An administrative body, such as the Interstate Commerce Commission, may well, perhaps, have power to decide in each case, in view of all the circumstances, the extent of departure from the rule which ought to be allowed.<sup>6</sup>

In the case of ocean transportation, there is no expense for construction or maintenance of way. It would therefore never be worth while to abandon a more direct route in order to save expense of upkeep. Unless winds or currents, etc., interfered, full cargoes shipped at one point and destined to another would ordinarily go direct, though two or more available routes may not

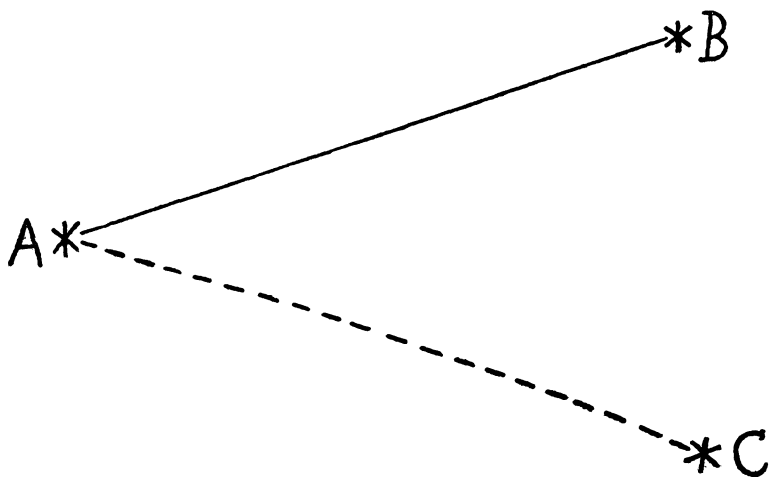
<sup>6</sup> The commission has, in fact, made rulings of this sort in some cases. See *Interstate Commerce Commission Reports*, vol. VIII, pp. 409-442 and 571-783. Cf. *Twenty-fifth Annual Report of the Interstate Commerce Commission* (1911), pp. 25, 26. Though the exercise of this power has been subject to judicial question (see pp. 27-41 of this report), it has recently (June 22, 1914) been upheld by the Supreme Court (34 *Supreme Court Reporter* 986).



infrequently be equally short or otherwise equally favored by nature. A somewhat roundabout route may at times be chosen for the sake of intermediate traffic, especially in cases where through traffic will not by itself provide full cargoes sufficiently often to justify as frequent service as shippers desire.

The third kind of competition which we have to consider, is competition of directions. This and the kind of competition next to be considered are generally lumped together with, it is believed, inadequate analysis, under the head of competition of and for markets.<sup>7</sup> In order to make clear what conditions must exist, in order that there should be competition of directions, we shall begin with an assumed case where such competition hardly exists in any significant degree. Suppose two roads leading from A, which we shall assume to be a center of coal mining, one to B and the other to C (figure 2).

FIGURE 2



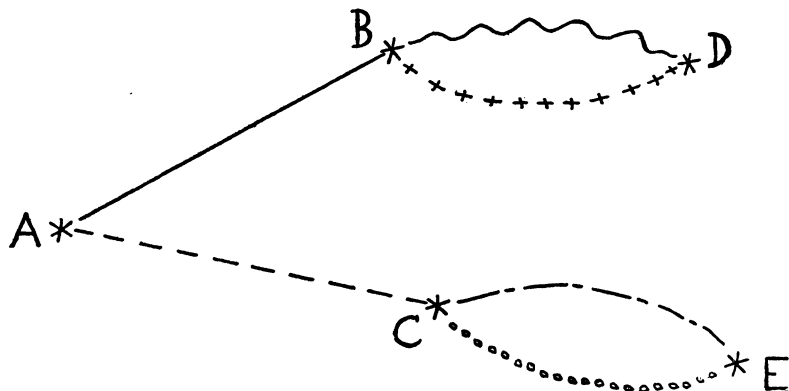
If the roads A B and A C should compete strenuously, each endeavoring to carry the coal over its own line to B and to C respectively, we should have here an example of competition of directions. But unless we make further assumptions, there is little basis for a conclusion that such competition would take place. Neither road need reduce its rate on the coal to a competi-

<sup>7</sup> See for example: Noyes, *American Railroad Rates*, pp. 125, 126; Johnson, *American Railway Transportation*, p. 265; Ripley, *Railroads, Rates and Regulation*, pp. 118-123.

tive level even if the other road does so, and neither is likely to gain but is rather likely to lose from taking the initiative in such reduction. Suppose the road A B to make low rates on coal to B. It does not follow that road A C must make low rates to C or lose the traffic. It is true that the producers at A will prefer to ship their coal to the market which will yield them, after subtraction of transportation expenses, the largest return. But the people at C will presumably need coal, and if road A C has a monopoly to that point it can probably continue to charge a high rate and still get large traffic. The people at C will have to pay a high enough price to cover this transportation expense and induce producers at A to send them the coal. The road A B will not succeed in diverting much more than it has previously of the output of A to the point B, and, therefore, since its rates are lower, will suffer a reduction of its revenues.<sup>8</sup>

Let us now consider a situation in which competition of directions might accomplish something appreciable for the community. Suppose, as before, two roads leading one from A to B and the other from A to C. But suppose that both B and C are in part supplied with coal by competing roads leading from coal-producing sections other than A, namely, from D and E respectively (figure 3).

FIGURE 3



We may suppose, also, that the annual coal production of A is not sufficient to satisfy completely both of the markets B and C. In

\*The possibility that B may be built up and that industries may desert C, and the consequent effects on the revenues of the roads, will be discussed with a consideration of the fourth kind of competition, that of locations.

this situation, the lines A B and A C can charge high rates only by combination or agreement with each other and at the expense of producers at A. The price of coal at B and likewise at C, because of the supply from another source or sources than A, can not exceed, say, \$5 a ton. High railroad rates from A, *e.g.*, \$3 a ton, can not force consumers at B and C to pay more than \$5, and must, therefore, result in a return of not more than \$2 per ton to producers at A. But if the line A B, for example, reduces its rate from \$3 to \$1, in order to encourage larger shipments of coal from A to B, then the line A C must reduce its rate on coal carried from A to C, or forego most of the business.<sup>9</sup> The line A C can not continue to enjoy high rates on coal shipped from A to C, by imposing a higher price for coal on consumers at C, since competition of lines from E to C insures these consumers a price not above \$5 a ton. Neither can A C impose the expense of \$3 per ton rates upon producers at A, thus keeping their net returns down to \$2 per ton, since, if A C attempts this, producers at A will ship most or all of their coal to B, over the line A B, receiving about \$5 a ton at B, paying \$1 a ton freight, and having a net return of \$4 a ton at the mines.<sup>10</sup> There is competition of directions because the coal produced at A will go, in the main, to B or to C according to the rates made by the rival roads A B and A C, leading in different directions from the same producing center.

Let us consider another possible situation. Suppose coal to be produced at A and at D and to be marketed at B and C over the railroads A B, D B, A C, and D C (figure 4).

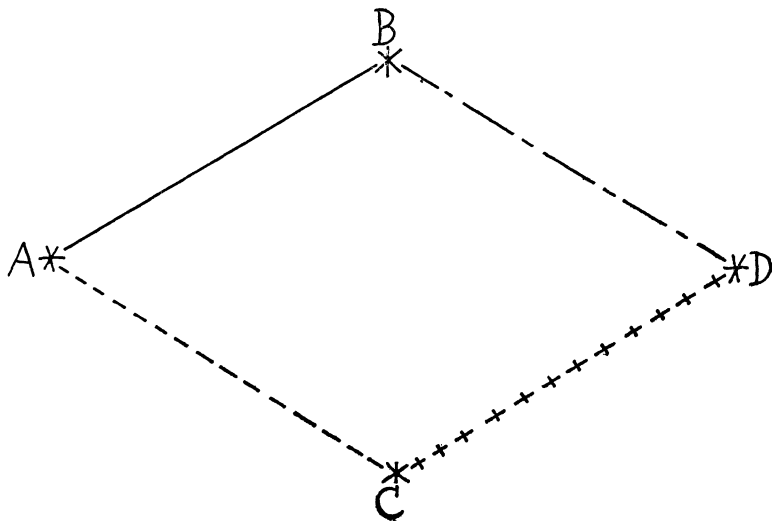
Suppose that, at first, each of the roads is charging \$3 a ton to carry the coal from either A or D to either B or C. The price of coal at B and at C is \$6 a ton, and, therefore, at the sources of production, A and D, it is \$3 a ton. One of the roads, for example the road A C, reduces its rate to \$2, hoping thereby to get more of the business. We have to inquire whether such an action will force reduction on any or all of the other roads.

\* Unless we suppose that the output at A is considerably increased, so as to leave a surplus for the high-rate road even after a low rate by the other has diverted the former output. But it is not to be supposed that capital will be rushed to A and the poorer mines previously unused be suddenly exploited for no better returns than could be had before.

<sup>10</sup> In practice, the extra supply of coal at B would tend to lower its price there below \$5 and lower the returns at A below \$4. But the change in figures involved does not change the essential principle of the case.

The effect of the reduction by A C will be different according as the benefit goes mainly to the producers at A or to the consumers at C or is divided more or less equally between them. Sup-

FIGURE 4



pose, first, that the benefit goes almost entirely to producers at A, these producers receiving about<sup>11</sup> \$4 instead of \$3 per ton for all coal shipped to C and the price at C remaining substantially unchanged. Then (assuming a limited annual production at A), the line A B would have to lower its rate between A and B to about \$2. For otherwise, most of the coal mined at A would be shipped to C, instead of the shipments being divided between B and C. Since the price at B is, by hypothesis, \$6, and the rate to B, \$3, the miners at A would get only \$3 net on coal shipped to B as compared with nearly \$4 on coal shipped to C. The road A B would therefore have to reduce or lose the business.

Suppose, second, that the benefit of the rate reduction by A C goes almost entirely to the consumers at C in the form of lower prices for coal, coal selling at C for little above<sup>12</sup> \$5 instead of for

<sup>11</sup> Probably not quite \$4, for the greater amount of coal shipped to C in consequence of the reduced rate would almost certainly reduce the price somewhat. Yet this reduction of price might conceivably be small, because of an elastic demand at and about C and because a small reduction of price might discourage and decrease shipments of coal to C from D.

<sup>12</sup> Probably somewhat more than \$5, because the better market for A's coal would be almost certain to affect its price somewhat. Nevertheless, an

\$6 a ton. The reduction by the line A C may then force an equivalent reduction by the line D C. Since coal from D can no longer sell at C for \$6 a ton, either the coal producers at D must accept substantially \$1 less on the coal sent by them to D, namely, \$2 instead of \$3 per ton, or the railroad D C must reduce its transportation charge from \$3 to about \$2. But the coal producers at D will not be likely to accept a much lower price at the mine than \$3 for coal shipped to C, so long as they can ship coal to B at a rate of \$3 and sell it there for \$6 a ton. Unless the market at B is decidedly limited (or the output of D too great to be mostly sold there), the line D B will be an effective competitor of the line D C for the traffic from D; and if the price of coal at C falls, while that at B does not, the line D C must reduce its rate or lose much or most of its coal traffic. It would be a superficial statement to say, merely, that we have here a competition of the lines A C and D C for the market at C. For D C would not be under the same compulsion that it is under to lower rates, were it not for the line D B and the alternative market of D coal at B. D C's competition is, therefore, equally a competition with the line D B, and may be classified with other cases of competition of directions. The coal produced at D has a choice of directions D C and D B towards the two possible markets.

Suppose, third, that the benefit of the reduced rate made by A C goes about half to the producers at A and half to the consumers at C. Producers at A get \$3.50 instead of \$3 per ton at the mine; and consumers at C have to pay only \$5.50 instead of \$6 a ton. On this supposition, the line D C will have to reduce its rate to \$2.50 to meet the lower price of coal at C. Otherwise, *i.e.*, if the loss from the lower price at C is thrown upon those producers at D who ship coal to C, no coal miners at D will send any of their product to C, but will send it, instead, to B. The possibility that the coal will go in this other direction, *i.e.*, to B, compels the road D C to reduce its rate 50 cents. Also, the road A B will have to reduce its rate to \$2.50. For producers at A receive a net return of \$3.50 on coal sent to C. With coal selling at B for \$6 and with a \$3 rate to B, they would receive but \$3 net on coal sent to B. They would, therefore, send little or no coal to B unless the road A B reduced its rate to about \$2.50.

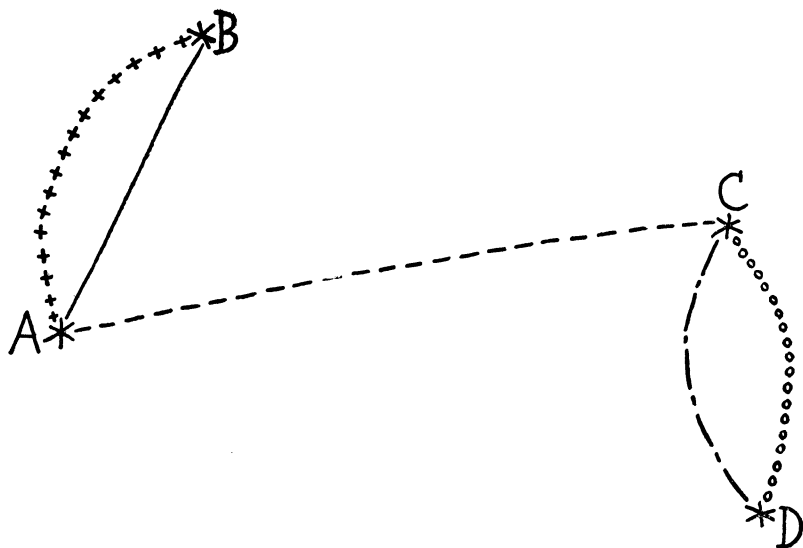
inelastic demand at C coupled with the shipping of somewhat more of A's output to C might well result in the consumers at C reaping most of the gain from the lower transportation rates.

If the benefit of A C's reduction is divided about equally, then, between producers at A and consumers at C, the roads D C and A B may each be forced to make a reduction about half that made by A C, and jointly about equalling the reduction made by A C. The rates charged by D B would not have to be lowered unless D C or A B made a further reduction or unless the road D B desired more traffic than before.

The situation is no different if the original reduction on the line A C results, not from a desire to secure more traffic but from an order of a government regulating body such as the Interstate Commerce Commission. In either case, the other road or roads affected must also make a reduction or lose traffic. It follows that regulation, directly, of the rates of one railroad, may affect and frequently does affect, indirectly, the rates charged on a number of other railroads.

One other hypothetical illustration of competition of directions will be given. Let us suppose A and C to be connected with each other by the single line A C (figure 5); but suppose that the

FIGURE 5



competition of two lines from A to B (or government regulation of transportation rates) fixes a minimum price below which coal producers at A need not sell, and that the competition of two lines from D to C fixes a maximum price on coal for consumers at C. The line A C must make a rate low enough to give the

producers at A as high a price as they can get by shipping to B, and to give the consumers at C as low a price on coal from A as they have to pay on coal from D. Otherwise, the line A C will get no business and the coal produced at A will be carried to B. The line A C may be said to compete with the lines from D to C, for the market at C; and to compete with the lines from A to B, in order to carry coal produced at A, over its line in the *direction* of C. It is situations of this general nature which justify the statement sometimes made by railroad men that they can not make rates but merely put in force rates made by commercial conditions. Nevertheless, the so-called commercial conditions which do determine these rates are likely to prove, on analysis, to be competitive conditions, as here shown, and to be controllable in so far as competition can be controlled.

It is not difficult to find real cases where railroads are in one or more of the situations as described above, and are therefore subject to competition of directions. Consider, for instance, the position of lines leading from various Michigan and Kansas salt-producing points to different and the same markets, as brought out in a recent case before the Interstate Commerce Commission.<sup>13</sup> A number of transportation lines, rail and water, lead from Michigan salt-producing points to various markets, and among others, to markets west and southwest of Michigan, on the Mississippi River. To these same points on the Mississippi River, salt is brought over different lines, east and northeast, from the Kansas salt fields. The Mississippi River lies about midway between the Michigan and the Kansas centers of salt production. Points on the Mississippi, and other points further west as well, may be supplied with salt from the Kansas or from the Michigan fields and, in fact, from different production centers in either of those states. On the other hand, many of the salt-producing centers have the option of shipping salt over any one of several transportation lines, either to several of the towns on the Mississippi River or to other points in the same or different directions. Here, then, are all the conditions for competition of directions. Traffic from a given producing center, *e.g.*, Detroit, Michigan, would meet like goods from another producing center, *e.g.*, Hutchinson, Kansas, or some other Michigan point, in a common market, St. Louis. If the Wabash Railroad, leading from Detroit to St.

<sup>13</sup> *Interstate Commerce Commission Reports* Vol. XXII, pp. 407-419, case decided February, 1912.

Louis refused to make reasonably low rates, it would find itself with less traffic or without traffic in salt. Rather than bear the burden of the higher rate, St. Louis dealers would secure salt from Hutchinson<sup>14</sup> or other Kansas points or from some Michigan point other than Detroit, *e.g.*, from Manistee or Ludington, and, therefore, over other transportation lines than the Wabash. Rather than accept less for their salt by virtue of the higher railroad rate, the salt producers of Detroit, being so situated as to have this option, would prefer to ship their salt in another direction and to a different market, for example, by way of a lake route to Toledo, Cleveland, or Chicago. As a matter of fact, most of the Michigan salt, perhaps 80 per cent, is shipped in the first instance by water. In view of all these conditions, not to mention others more properly connected with competition of locations, the Wabash Railroad has found itself compelled to make rates on salt from Detroit in reasonable relation to the rates made by competitors.

We have an illustration of what is probably, in part, competition of directions involving ocean carriers, in the export trade from the United States to South and East African ports. The rates charged are said to be maintained, as nearly as possible, on the same level as the rates from British and continental ports.<sup>15</sup> But why must such rates be made? Is it not largely because otherwise the goods which these vessels might carry from America would be shipped by producers in other directions and to different markets, either within or outside of the boundaries of the United States? In other words, is not one of the most important influences to be considered the fact that the American producers *have an alternative* of which they will avail themselves if not granted reasonably satisfactory rates?

We may, indeed, broaden our conception of competition of directions, so as to have it include the making of rates to induce shipment of goods by producers, in a given direction and over given transportation lines, when otherwise some of these producers

<sup>14</sup> If from Hutchinson, the Wabash might carry it part of the distance but a much less distance than if from Detroit. But at St. Louis, the Wabash has particularly to fear competition from Michigan sources of supply other than those on its own line.

<sup>15</sup> Huebner, Report on Steamship Agreements and Affiliations in the American Foreign and Domestic Trade, in *Proceedings of the Committee on the Merchant Marine and Fisheries in the Investigation of Shipping Combinations*, 1914, vol. IV, p. 93.



would find it more profitable to engage in the production of an entirely different class of goods, marketable only in another direction and over other lines. Thus, the ships leading from American ports to South and East African ports must charge on American goods marketable in Africa, reasonable rates in relation to rates charged from Europe, not only because without such rates the American producers might seek other markets for those goods, but also because these producers might, to some extent, decide to engage in the production of other goods, not marketable in Africa. For the American producers to choose this latter alternative, no less than for them to choose the former, would mean diminished freight for the America-Africa lines. In the same way the making of low rates by a railroad to enable a manufacturing plant to market its produce and so "keep it in business," may often be, in the last analysis, a competition of this sort. The persons operating the plant would doubtless, in any case, be engaged in *some* business, but the alternative kind of production might not provide traffic for the particular railroad in question.<sup>16</sup>

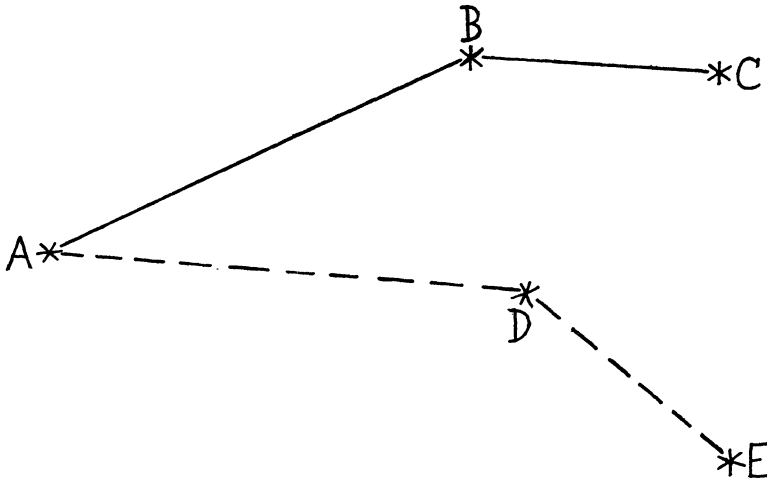
The fourth kind of competition is competition of locations. It is by itself perhaps less effective in protecting the public against monopoly rates than any of the other three kinds of competition, and certainly less effective than either of the first two kinds. To illustrate competition of locations, assume two railroad lines leading into a common terminal city, A, the one coming from C through B and the other from E through D (figure 6).

Let us suppose that B is favorably located for iron and steel production, being in the center of a coal-producing district and being able to get iron ore from C. The market is largely in and about A. The point D is no less favorably located for iron and steel manufacture, there being coal about D and iron ore about E. Iron and steel manufacturers will locate at D in preference to locating at B, provided they have better opportunity at D, because of low transportation rates, to reach the market A and secure a satisfactory profit. In general, the original and continued location of an industry in any center of production depends, in part, upon the transportation rates it can get, and particularly upon the rates made to markets where competitors from other producing centers must be met. High rates to points

<sup>16</sup> It is not improbable that railroads sometimes, without realizing it, make rates to maintain traffic in a given kind of goods over their lines, when the nearest alternative to the persons producing those goods, would be the production of other goods for shipment over the same railroad.

on the same line, where the competition from other sources of production is not equally to be feared, may, if necessary, be shifted to consumers. The industry may, therefore, continue to exist in a given center of production even without low rates into a common market, because of its sale in territory which is less competitive; but it will not be carried on in that center of production to the same extent. In that sense, the rates charged

FIGURE 6



influence the location of the industry, *i.e.*, the extent of its location at any producing center. In our assumed case, the rate on the iron and steel products from D to A must be low enough, along with the rate on iron ore from E to D, and, perhaps, on other needed supplies, machinery, and food for workers, from both A and E into D, so that conditions as a whole will favor existence of the industry at D as well as at B. Otherwise, the line E D A may find itself with an unprofitably light traffic.

Yet this kind of competition is likely to be relatively unimportant in its effect on rates. If the manufacturers at D have natural advantages over those at B—are nearer, for example, to the market and to a source of iron ore—the line serving D can charge considerably higher rates in proportion to distance, or perhaps rates absolutely higher, than the line serving B, and still keep the manufacturing industry in its territory.

If a railroad has, throughout any part of its territory, no competition to meet but the competition of locations, it is pretty certain that it can make some of its rates high, even rates to a

common market, without corresponding loss of traffic. The loss would fall upon the owners of favorably situated land. Thus, high rates on wheat, if the wheat is produced on exceptionally good land, or high rates compared to distance, if it is produced near a market, will simply reduce the profits of agricultural land owners, but will not cause them to abandon their fields, though they may, in consequence, cultivate not so intensively.

Competition of locations has existed in the past and probably in some degree still exists in the transportation of lumber from Minneapolis, Milwaukee, Chicago, Winona, La Crosse, Eau Claire, and other points in northern Michigan and along the Mississippi River to Missouri River points, *e.g.*, Kansas City, Omaha, Sioux City, etc., as consuming centers.<sup>17</sup> Many of these Missouri River cities are common markets served by more than one railroad. Each railroad desired that such a common market or markets should be supplied most largely from lumber production along its own lines. Rates made by any one such road, unduly high in relation to rates made by its rivals serving other centers of lumber production, meant that the production of lumber on its line would decrease or cease. Producers would prefer to engage in the business at a point where rates were not so high. Until an agreement was reached by the various roads, in 1884, fixing the relation of rates to be charged from various lumber centers, there was a considerable amount of keen competition among the railroads concerned. Where the rates of different transportation companies are so adjusted each to each, reduction of the rates of one, by order of a government regulating commission, may indirectly force reduction of the rates of others.

Where the competition is a competition of directions or a competition of business locations, as well as where it is a competition of routes, it may sometimes be not undesirable that some goods should be carried over a longer route instead of all being carried over a shorter route. For the longer route may sometimes have enough more intermediate traffic to enable it to take the longer distance traffic for lower rates than the shorter route can afford.<sup>18</sup> Competition of directions and competition of locations are not inconceivable in water transportation, and instances of them could doubtless be given. But because of the free use of waterways by different companies, these kinds of competition are less apt to be the only protection to the public against monopolistic rates.

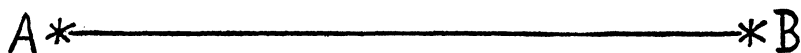
<sup>17</sup> *Interstate Commerce Commission Reports*, vol. V, pp. 264-298.

<sup>18</sup> *Cf. supra.*

Besides competing with each other, transportation companies may be said to compete, also, in a sense, with local self-sufficiency. Especially when distances are great, reasonably low rates per mile are necessary in order that districts shall specialize in different lines of activity and exchange their different products with each other. High transportation rates compel, in each district, a greater degree of self-sufficiency. Low rates promote commerce. To some extent, transportation companies doubtless bid for the business of transporting goods over long distances, thus taking part in the competition of shippers with local producers in the territory to which the goods are sent.

To illustrate, suppose two sections of the country, A and B, 1,000 miles apart but joined by the railroad A B (figure 7).

FIGURE 7



The general level of prosperity in other industries at A may be such that no one will mine coal there (of which there are deposits) for less than \$3 a ton. In B, on the other hand, conditions are such that coal can not be produced and sold locally for less than \$5 a ton and yield as good a return on labor and investment as other local industries. Unless the railroad A B makes a rate of \$2 a ton or less for carrying coal 1,000 miles, B will produce its own coal, A will probably engage more largely in the production of goods for local use, and the railroad A B will not get the coal traffic.

Such competition with local self-sufficiency has been of recent importance in Indiana. In the northern part of that state many wagon roads have been in process of construction. In the building of these roads there has frequently been the alternative of using gravel from gravel pits within a few miles of the roads to be made or crushed stone from various quarries near Chicago, Toledo, and Milwaukee. The railroads have made low rates on the crushed stone<sup>19</sup> in order, by enabling quarry owners to ship their product, to get traffic which otherwise could not be had.

The classic and usual statement with regard to rates independently made by railroads, *i.e.*, made without direction or interference from government, is that these rates are made on the basis of "what the traffic will bear."<sup>20</sup> This statement, properly

<sup>19</sup> McPherson, *Railroad Freight Rates*, p. 142.

<sup>20</sup> Hadley, *Railroad Transportation* (New York, Putnam, 1885), p. 11.

understood, is correct, but its meaning requires some explanation. To say that a railroad leading from the Pennsylvania coal fields to New York City will charge, on coal shipped to New York, what the traffic will bear, does not mean that if higher rates are charged the railroad will not get any traffic at all. Neither does it mean that at lower rates the railroad would not get more traffic. It means, simply, that the rates charged, when there is no legal regulation and when the interests of the railroad are chiefly or solely considered, will always be the rates yielding the largest net returns on capital invested.<sup>21</sup> Higher rates will so decrease traffic that even the larger return per unit business will be a smaller net return on capital. Lower rates will usually increase traffic, but will not increase it enough to compensate for the smaller return per unit business and the larger expense of carrying more goods. On any special kind or class of traffic, therefore, the rates charged by a given railroad are those yielding it the greatest profit; or, in this sense of the expression, the rates charged are what the traffic will bear.

But though monopolistic as well as competing transportation companies base their rates on what the traffic will bear, the conditions determining monopolistic rates are markedly different from those fixing competitive rates. The rates which monopolized traffic will bear are usually higher than the rates which competitive traffic will bear. A transportation company having a monopoly is concerned only with the effect of its rates on the total volume of traffic within its territory, for its own traffic is synonymous with this total traffic. Its only fear is that its rates may be so high as to destroy transportation business. Such a company's rates need only be *what the traffic will bear without being destroyed* in whole or in part.

A transportation company having competitors, however, is interested not only in the effect its rates may have on the total transportation business of the territory it serves, but also, and usually to a much greater extent, in the effect its rates may have on its own business compared with that of its rivals. A slight change in its rates will probably make very little difference in the total amount of goods carried in the given territory, even if its rivals make exactly similar changes. But a slight change in its rates, if its rivals do not make similar changes, will probably affect very greatly the amount of business done by the particular

<sup>21</sup> Far-sighted management may consider the future as well as the present.

company making the change. A slightly higher rate will result in diverting much or most of its business to its rivals. A slightly lower rate will result in its getting business away from them. We may say, therefore, that the rates charged by a transportation company subject to competition, will be *what the traffic will bear without being diverted*.

What the traffic will bear without being destroyed, is generally more than what the traffic will bear without being diverted. Therefore monopoly rates are generally higher in proportion to distance or to service rendered than competitive rates.<sup>22</sup> It is commonly deemed essential to regulate monopoly rates, by government, for the protection of the general public and for the furtherance of commerce. Unregulated monopoly rates, though they will not be made, with intention, so high as to decrease net profits, may, nevertheless, be made so high that the volume of commerce becomes smaller than, for the greatest national wealth, it ought to be. A monopolistic transportation company can well afford to charge rates 20 per cent above a competitive level if its doing so makes its traffic only 10 per cent less than it otherwise would be. Yet the monopoly rates, in thus making traffic less even by but 10 per cent, would be preventing commerce which ought, for the general welfare, to take place. In this regard, such rates are analogous to a protective tariff.

Competition of transportation companies with each other, we have seen to be of four kinds: competition of different companies over the same route, competition of routes, competition of directions, and competition of locations. In addition, a transportation company may be said to compete, in a sense, with potential local self-sufficiency. Competition of different companies over the same route applies particularly to competition on open waterways. In the case of railroads, the right of way of one company is generally used only by that company. Competition of routes applies both to railways and to waterways. The other kinds of competition are, perhaps, of more importance in relation to railways, though not inconceivable in the case of water transportation.

When two or more routes join two given points, the usual rule is that transportation over the shortest or the most level route is the most economical, although it does not necessarily follow

<sup>22</sup> Cf. article by the present writer in the *Quarterly Journal of Economics*, August, 1908, entitled "Competitive and Monopolistic Price Making."

that the beneficial stimulus of competition and its protection of the public against monopoly should be sacrificed to enforce the carriage of goods by the shortest available line. On the other hand, there are cases where a longer line is a more economical one for the carriage of goods between two given points than a shorter one. In the first place, the traffic may be in excess of the carrying capacity of the more direct line, and it may be better to use the longer line, even though the profit is small, than to invest additional capital in railroad plant. In the second place, it may be preferable to build a roundabout rather than a direct line to carry traffic unprovided for, between two points, if the roundabout line taps enough more intermediate traffic so that the longer distance traffic, having to pay less of the general expenses and profits, can be carried by the roundabout line more cheaply. In the third place, if facilities between two points are in excess of traffic and one line has to be abandoned, it may be preferable to abandon a shorter line rather than a longer, provided the longer line has much more of intermediate traffic which helps it to be profitable and enables it to carry goods between the two given points for a relatively low rate.

Competition of directions exists when each of two lines is compelled to make rates from a given center of production, based on the rates made by a rival, leading in a different direction and to a different market. That this competition may be effective, there must be other conditions—in our illustration, other transportation lines—influencing prices in both markets or in the source of production and at least one of the markets.

Competition of locations exists when transportation lines endeavor to make conditions favorable for various industries, in territories which they serve, by reasonable rates on raw materials, finished products, etc., in order that the industries may develop along their lines instead of elsewhere. These last two kinds of competition have doubtless some importance but are less effective than the first and second kinds.

Monopoly rates are usually higher than competitive rates, because the former are based on what traffic will bear without being destroyed, while the latter are based on what traffic will bear without being diverted; and because a rise in a transportation company's rates which would have almost no effect in decreasing the total amount of traffic, would, if it has competitors, cause most of its business to be diverted to them.

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